

Epidemiology of HIV/AIDS

Seattle-King County, WA



HIV/AIDS Epidemiology Program
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On the web at www.metrokc.gov/health/apu/epi



Objectives of this slide series

- ◆ AIDS epidemiology in King County
 - Overall trends
 - Grouped data: exposure modes, gender, age, race/ethnicity
 - Including recent HIV data
- ◆ Estimates of local HIV prevalence



HIV/AIDS Epidemiology Program Goals

- ◆ Assess the prevalence and incidence of HIV & AIDS; study and interpret patterns of the epidemic
- ◆ Fulfill legal mandate for case reporting
- ◆ Provide this information to guide planning and evaluation of prevention, care, and social services
- ◆ Work in partnership with the community



HIV/AIDS Epidemiology

Seattle-King County, WA



Cumulative Incidence of AIDS

December 31, 2000

	King Co.	WA State	U.S.*
◆ Adult/Adolescent	6,081	9,386	745,103
◆ Pediatric (<13 yrs)	15	33	8,804
◆ TOTAL CASES	6,096	9,419	753,907
◆ Deaths	3,575 (59%)	5,351 (57%)	438,795 (58%)

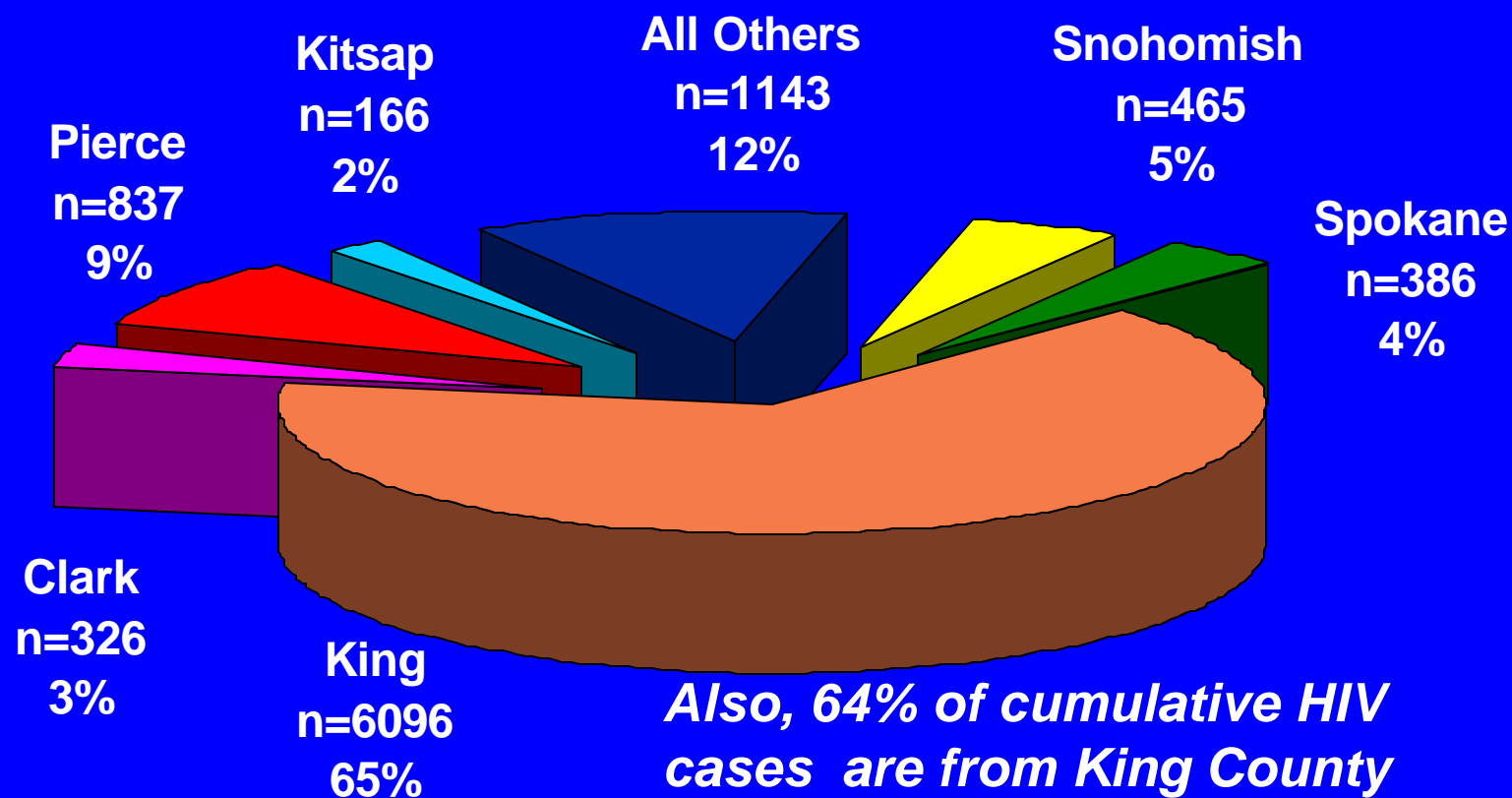
*U.S. data as of 6/30/00



PHSKC 4/01

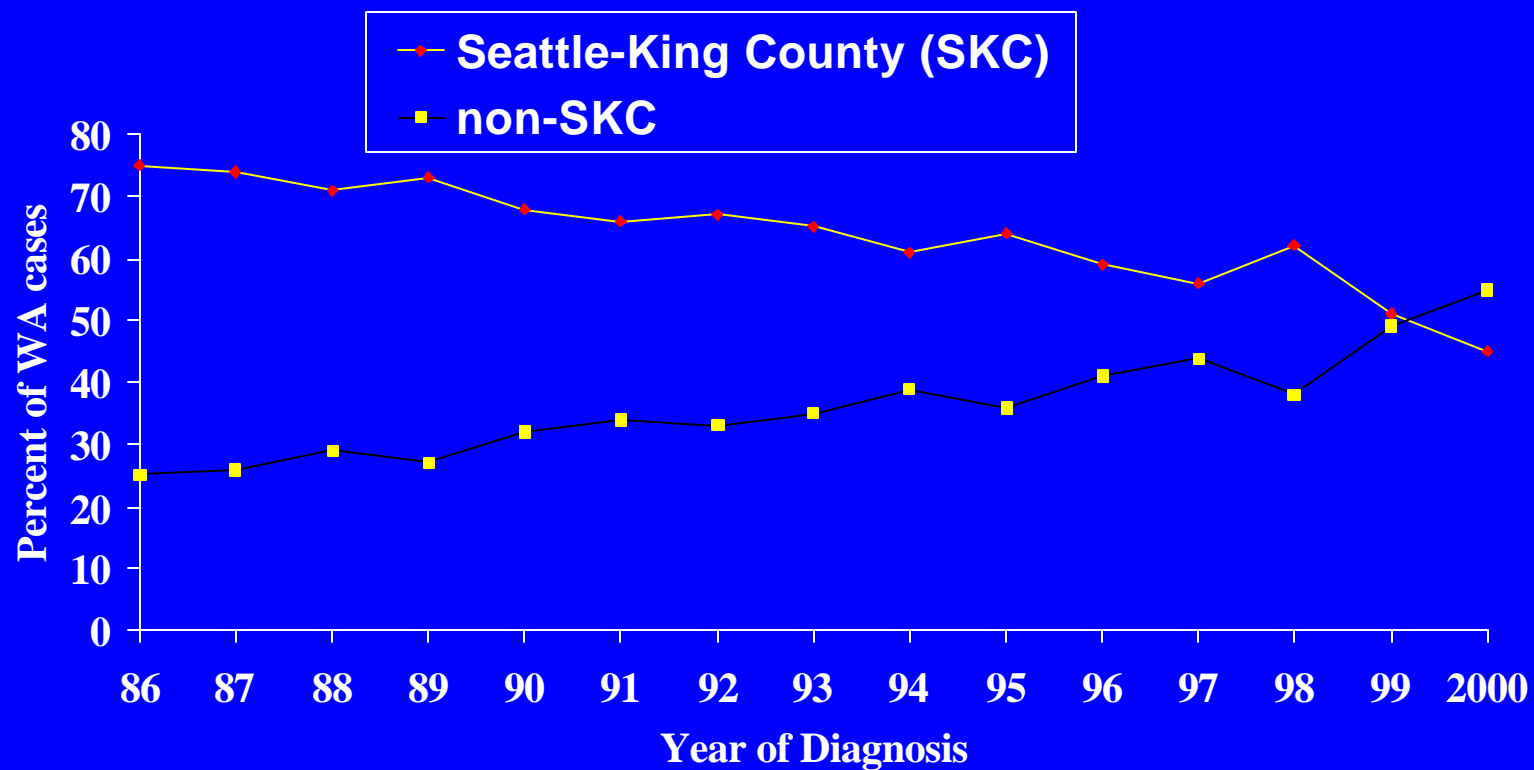
AIDS in Washington State by County

December 31, 2000 - N= 9419



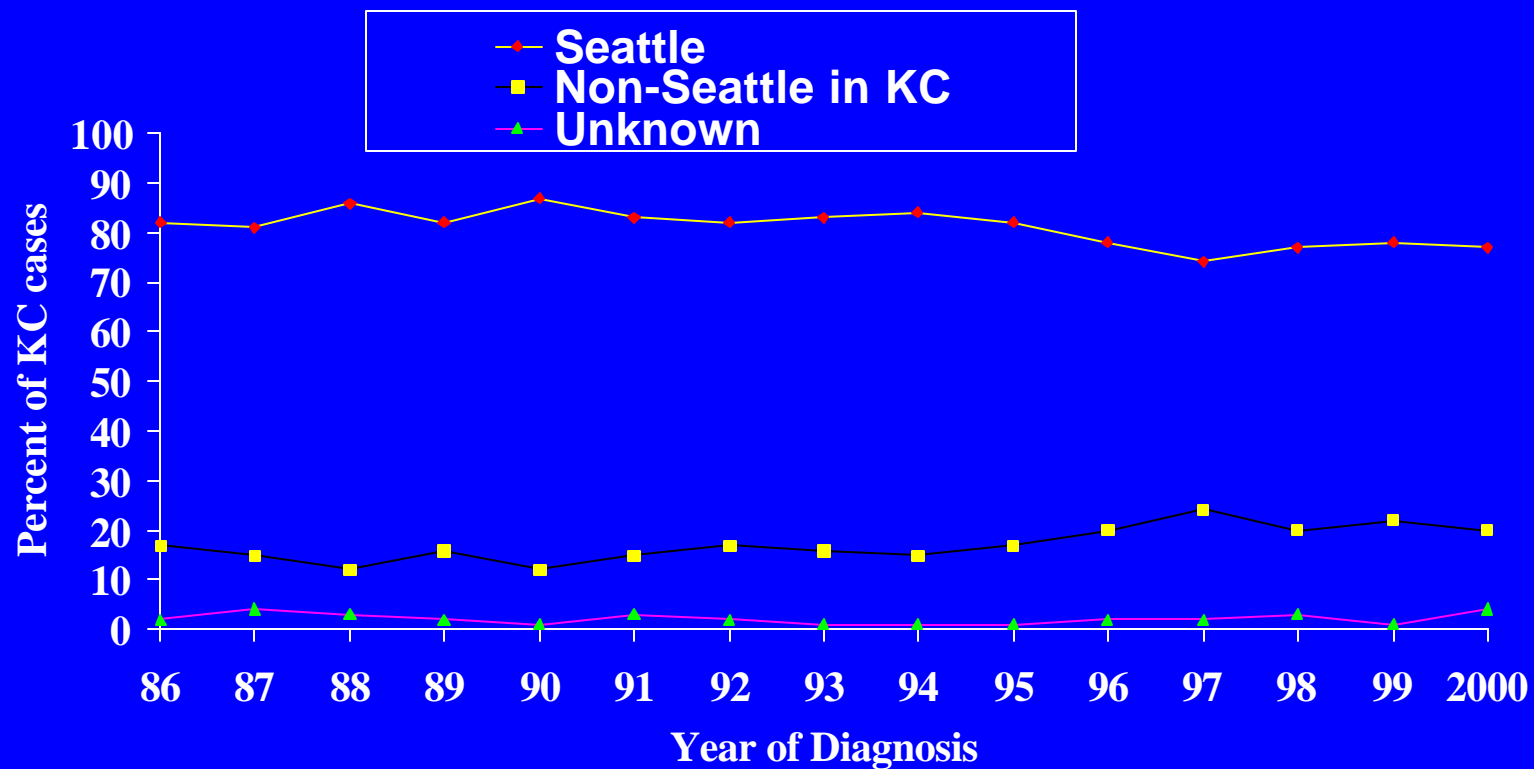
AIDS Cases by Residence at Diagnosis

Washington State, 1986-2000 N=9,419



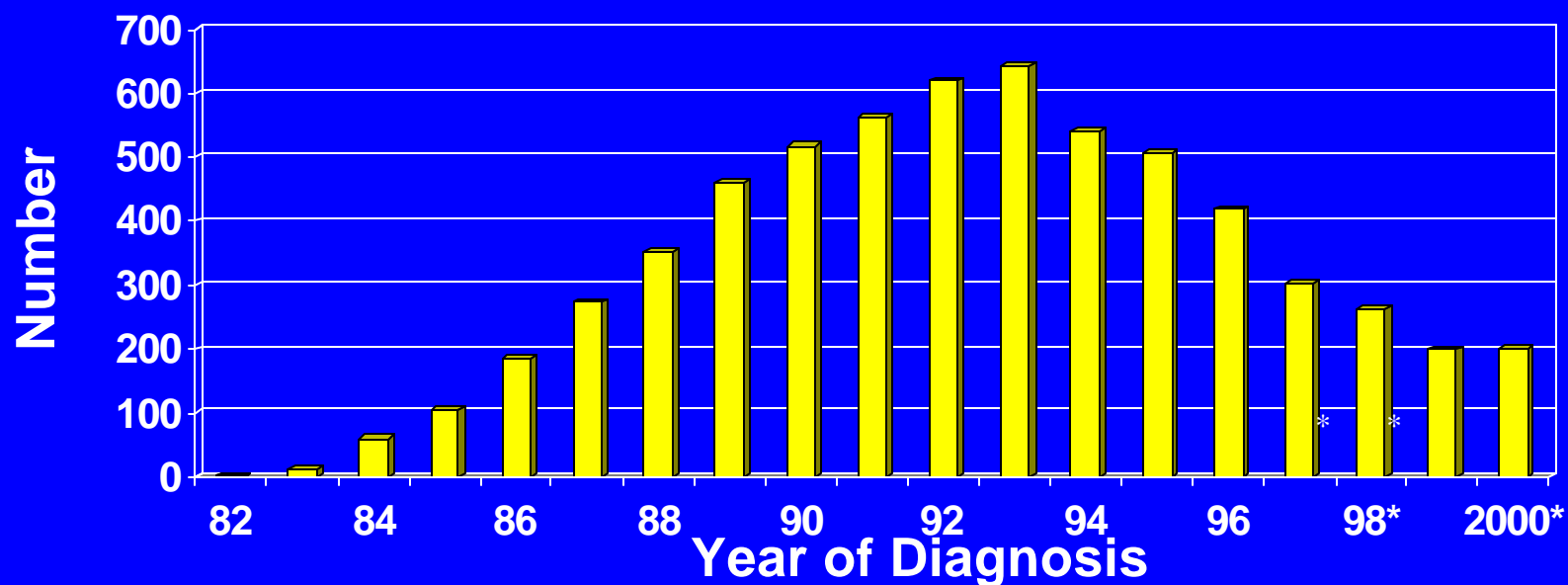
AIDS Cases by Residence at Diagnosis

King County, 1986-2000 N=6,096



AIDS Cases by Year of Diagnosis

King County, 1982-2000 N=6096

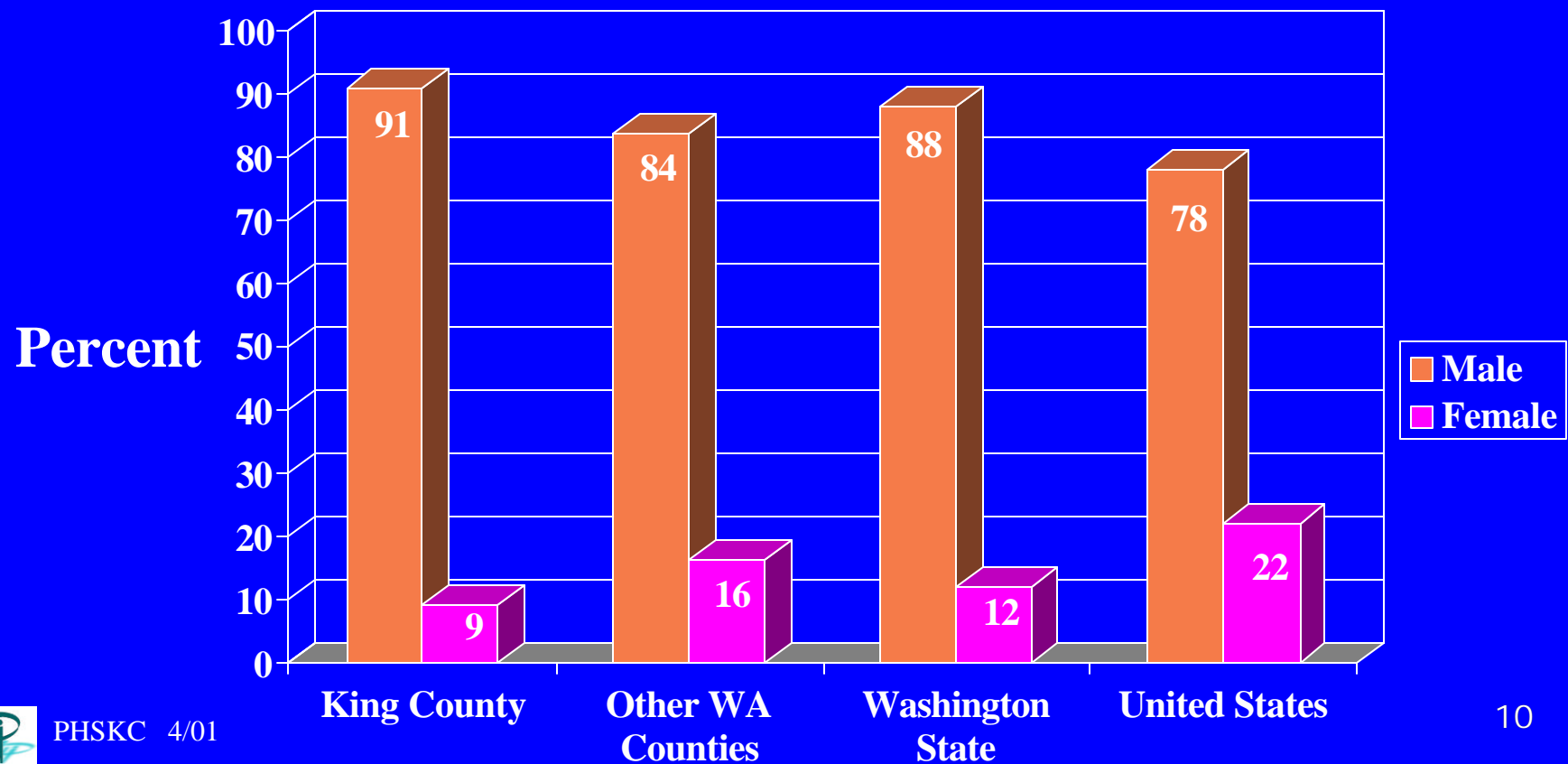


* Adjusted for reporting delay



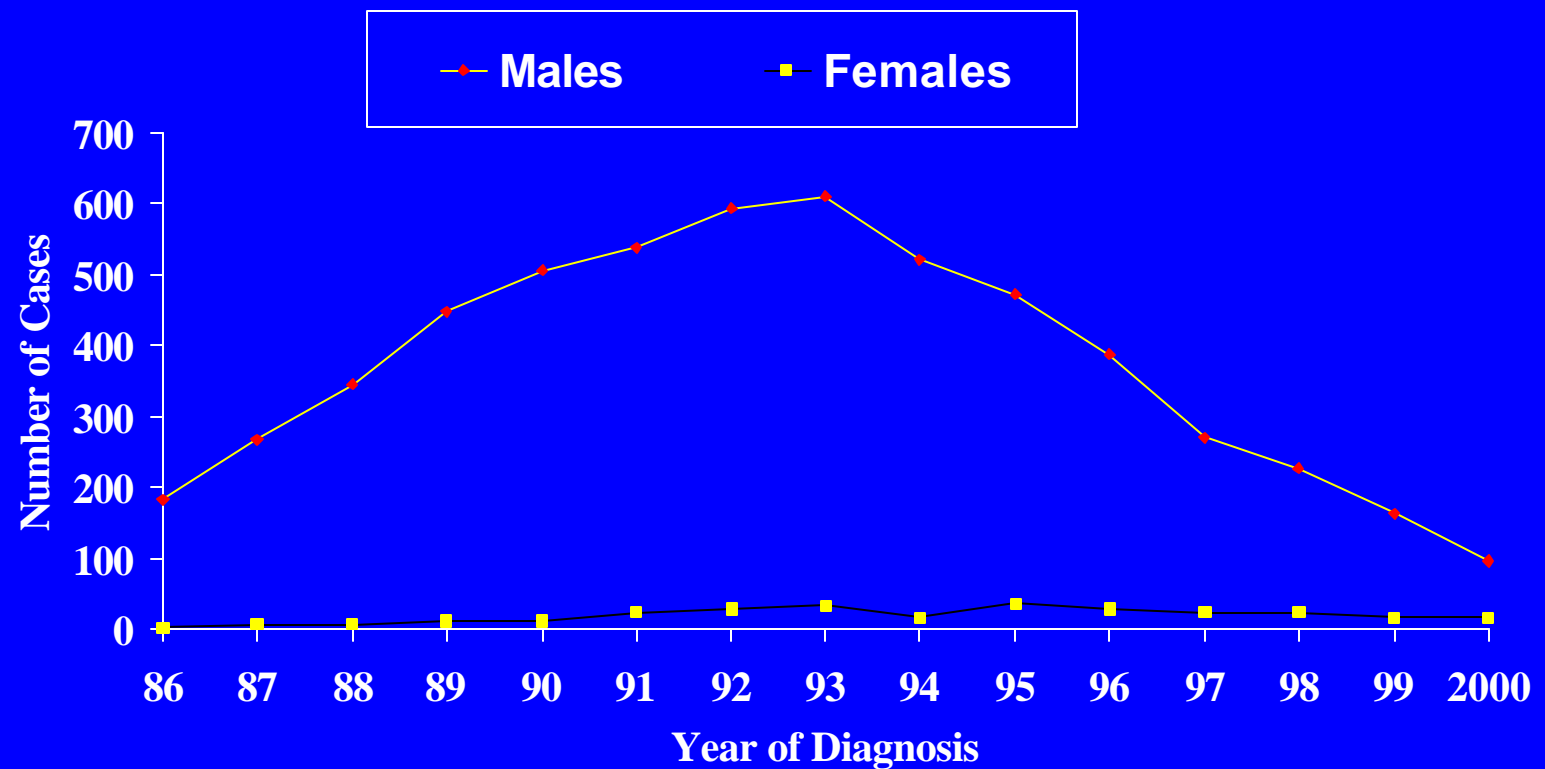
AIDS Cases by Gender

Geographic Comparison, 1997-1999



Trends in AIDS Cases by Gender and Year

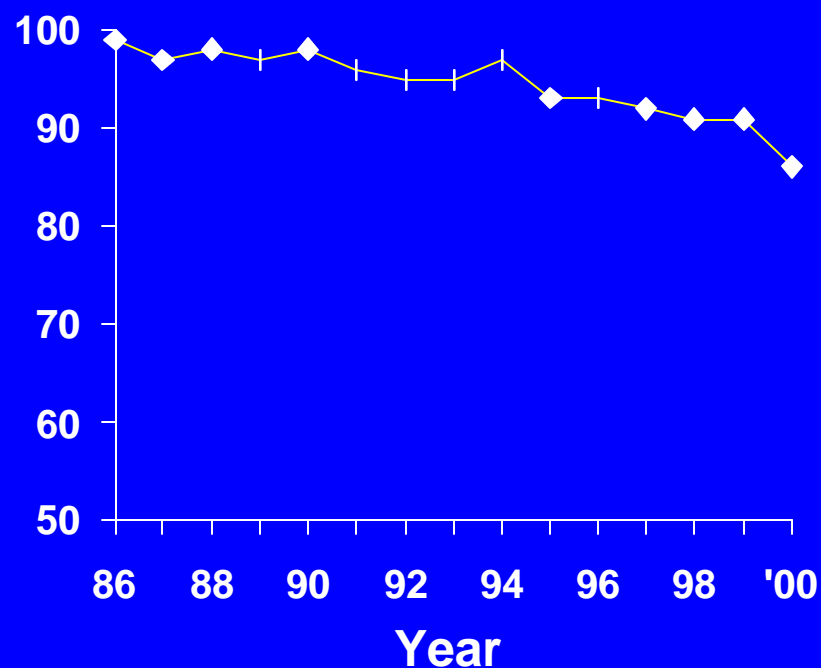
King County, 1986-2000



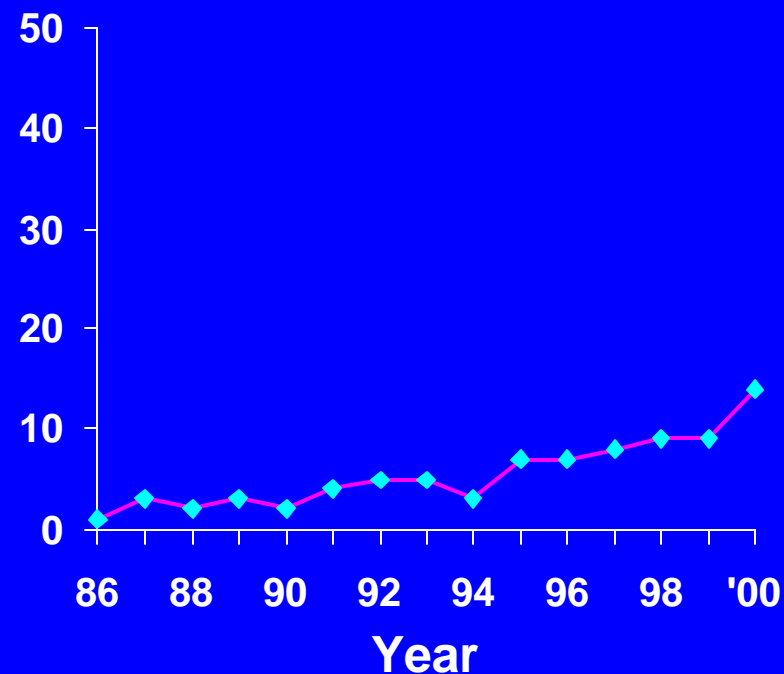
AIDS Cases by Gender and Year of Dx

King County, 1986-2000

Percent in Men

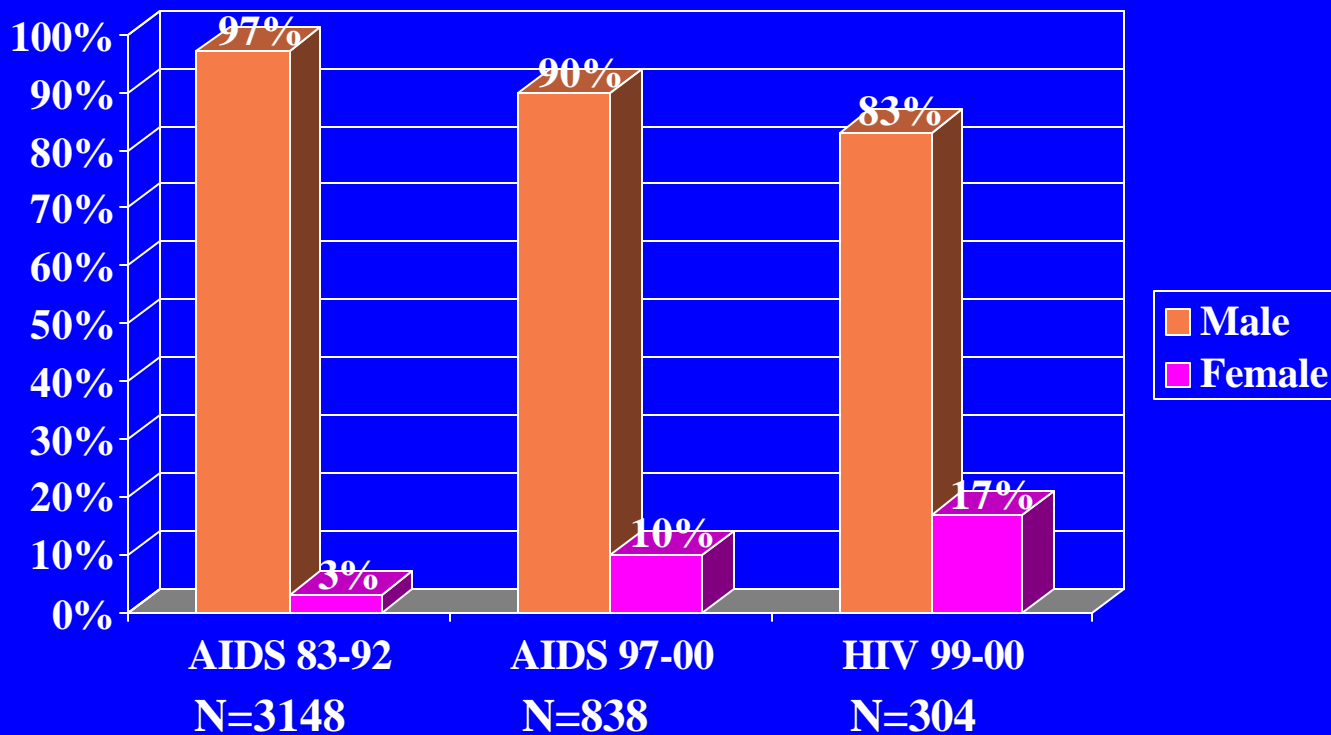


Percent in Women



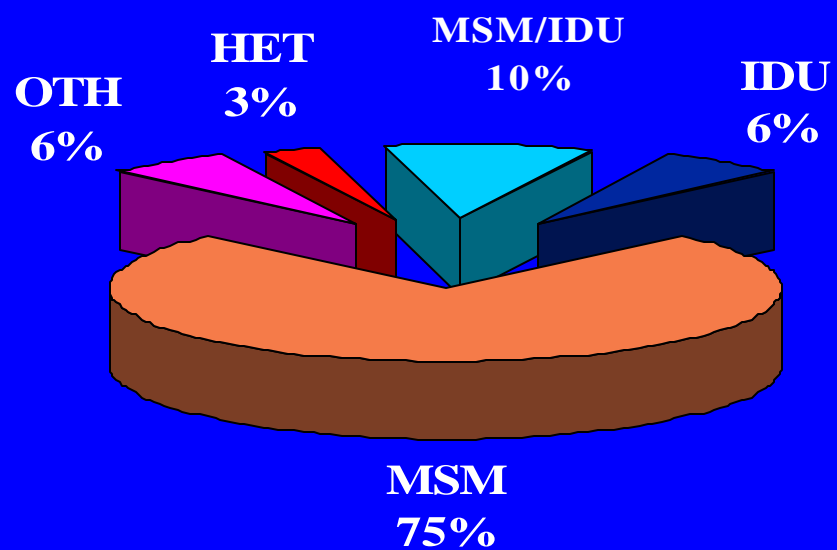
HIV/AIDS Cases by Gender

Early AIDS vs. recent AIDS and HIV cases, King County



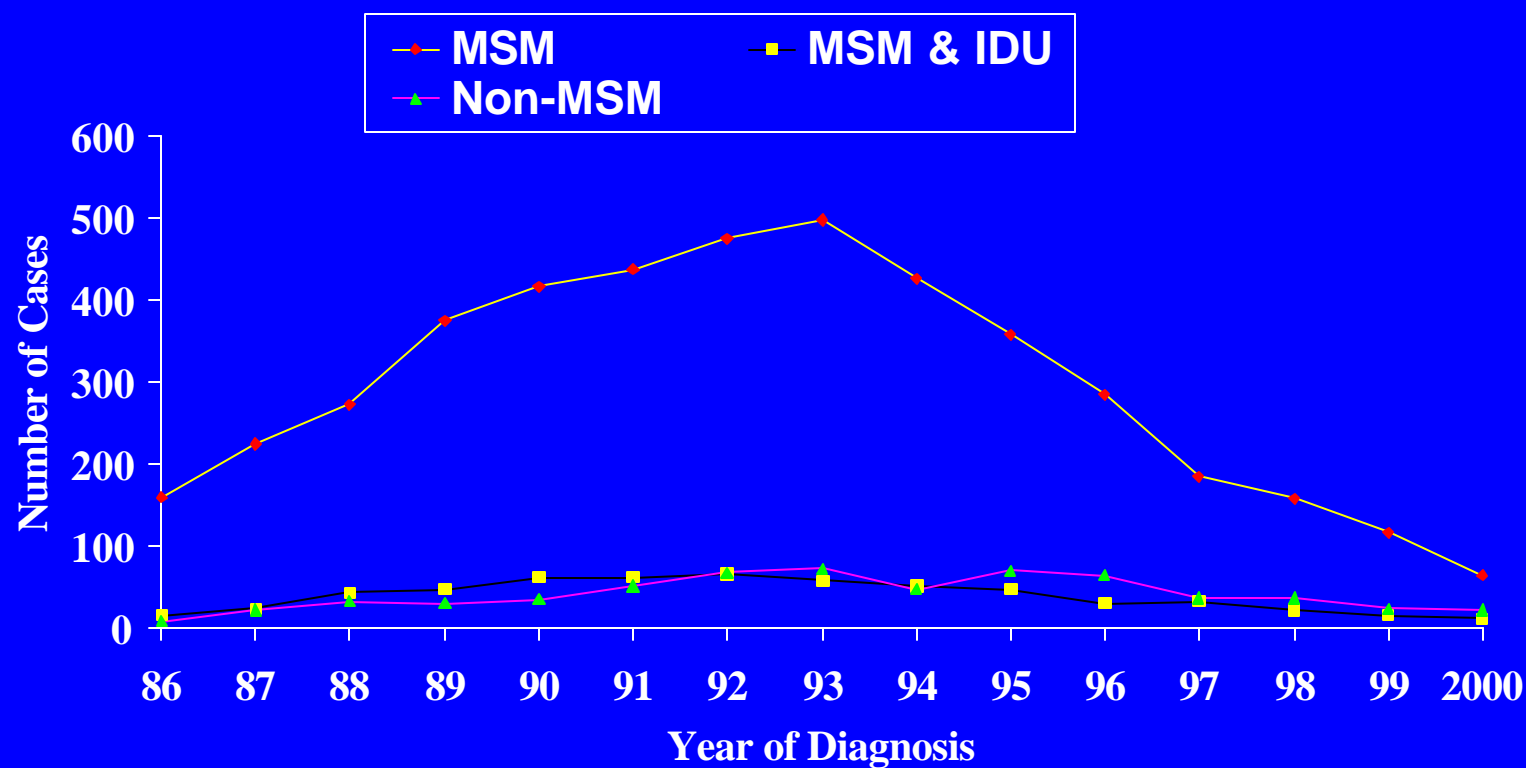
AIDS Cases by HIV Exposure Mode

King County, 1983-2000



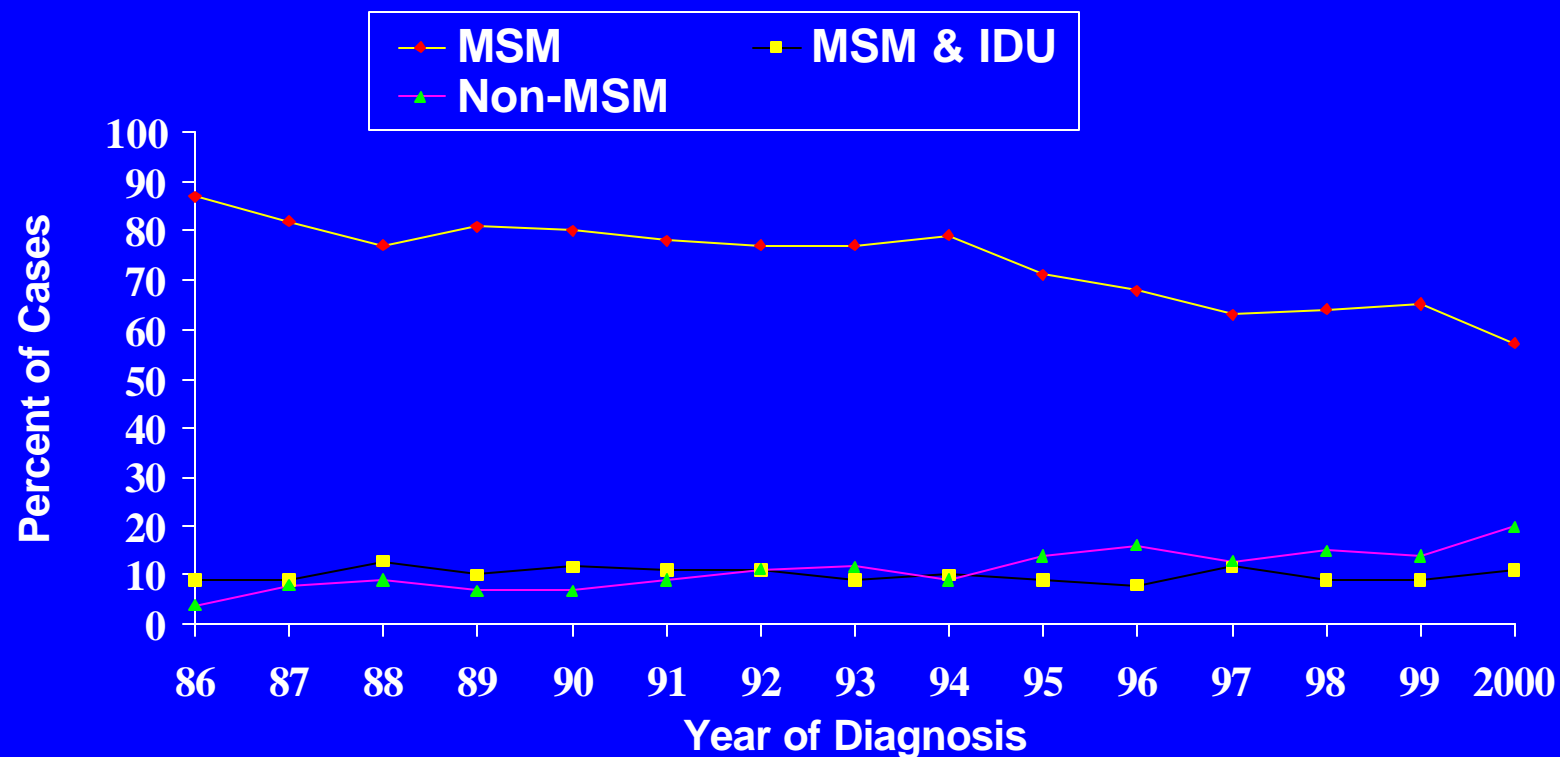
Trends in AIDS Cases by Exposure Mode

(cases with known risk) King County, 1986-2000 - N=5,860



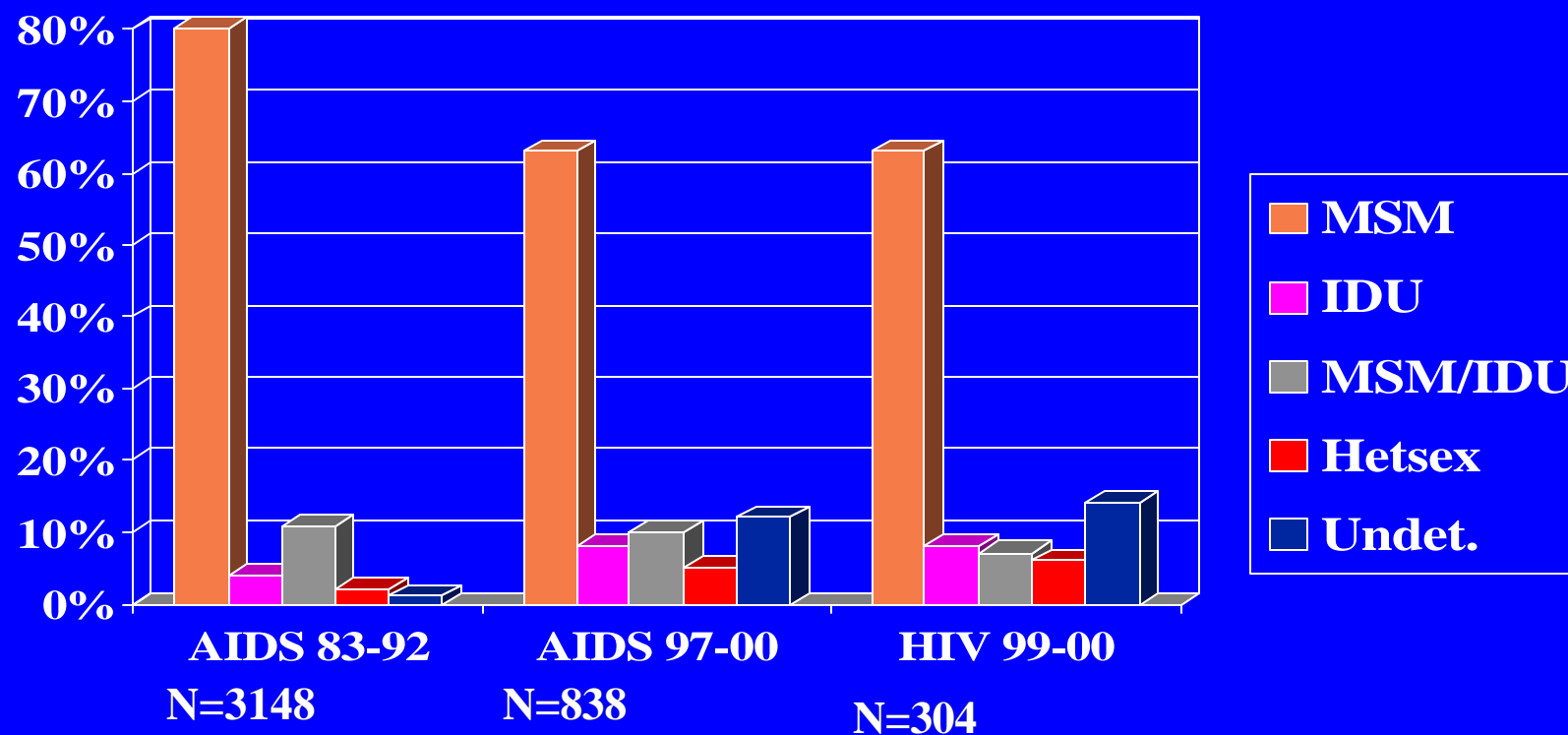
Trends in AIDS Cases by Exposure Mode

(cases with known risk) King County, 1986-2000 - N=5,860



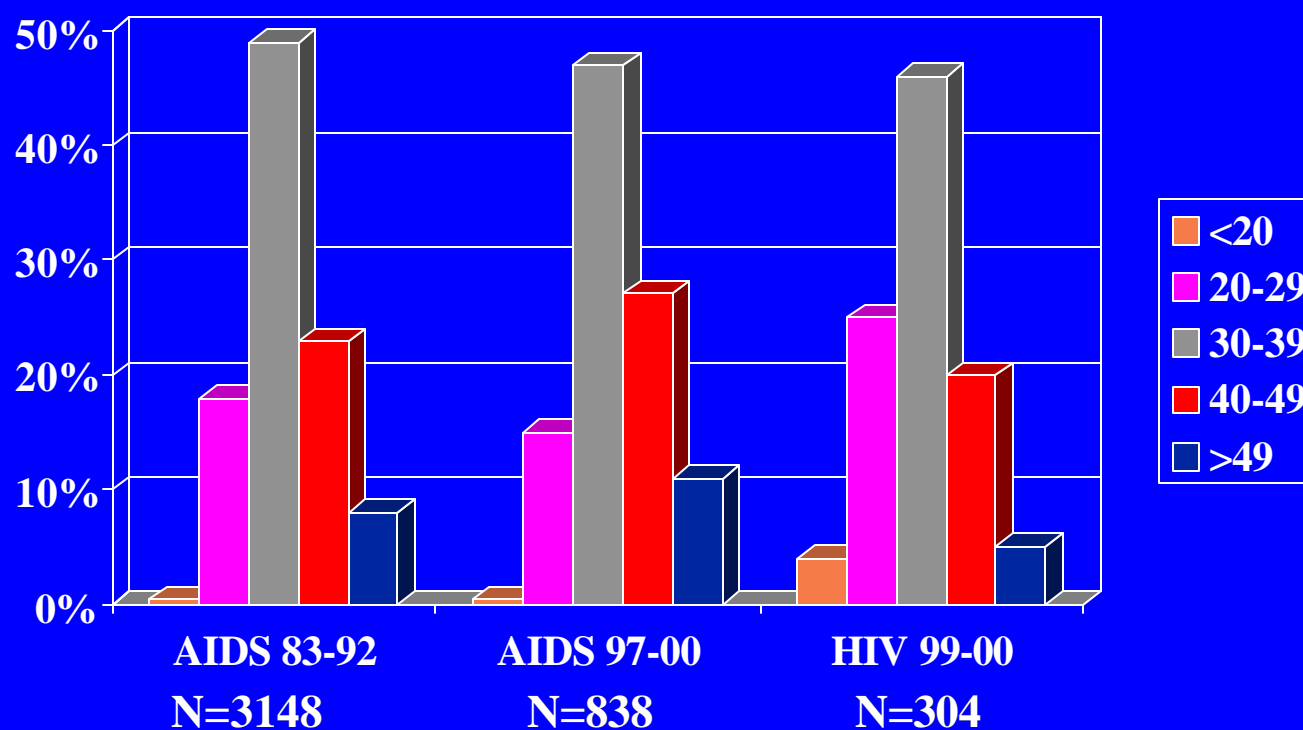
HIV/AIDS Cases by Exposure Mode

Early AIDS vs. recent AIDS and HIV cases, King County



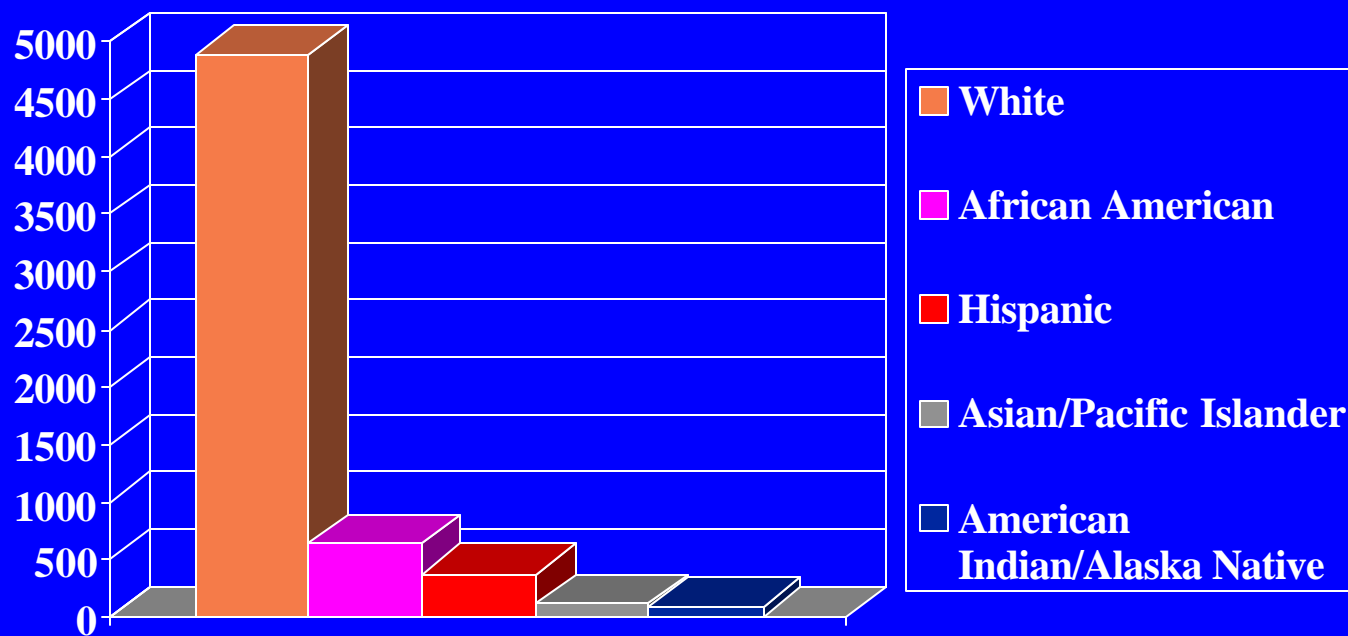
HIV/AIDS Cases by Age at Diagnosis

Early AIDS vs. recent AIDS and HIV cases, King County



Cumulative AIDS cases by race/ethnicity King County, 1982-2000

Number of Cases



Racial/Ethnic Composition of King County

1997 Population: 1,652,775

	<u>King Co. Outside Seattle</u>	<u>City of Seattle</u>	<u>Total King Co.</u>
White, non-Hispanic	85%	68%	79%
African American, non-Hispanic	3%	11%	5%
Hispanic	4%	5%	4%
Asian/Pacific Islander	8%	15%	10%
American Indian/AK Native	1%	1%	1%

Population Distribution

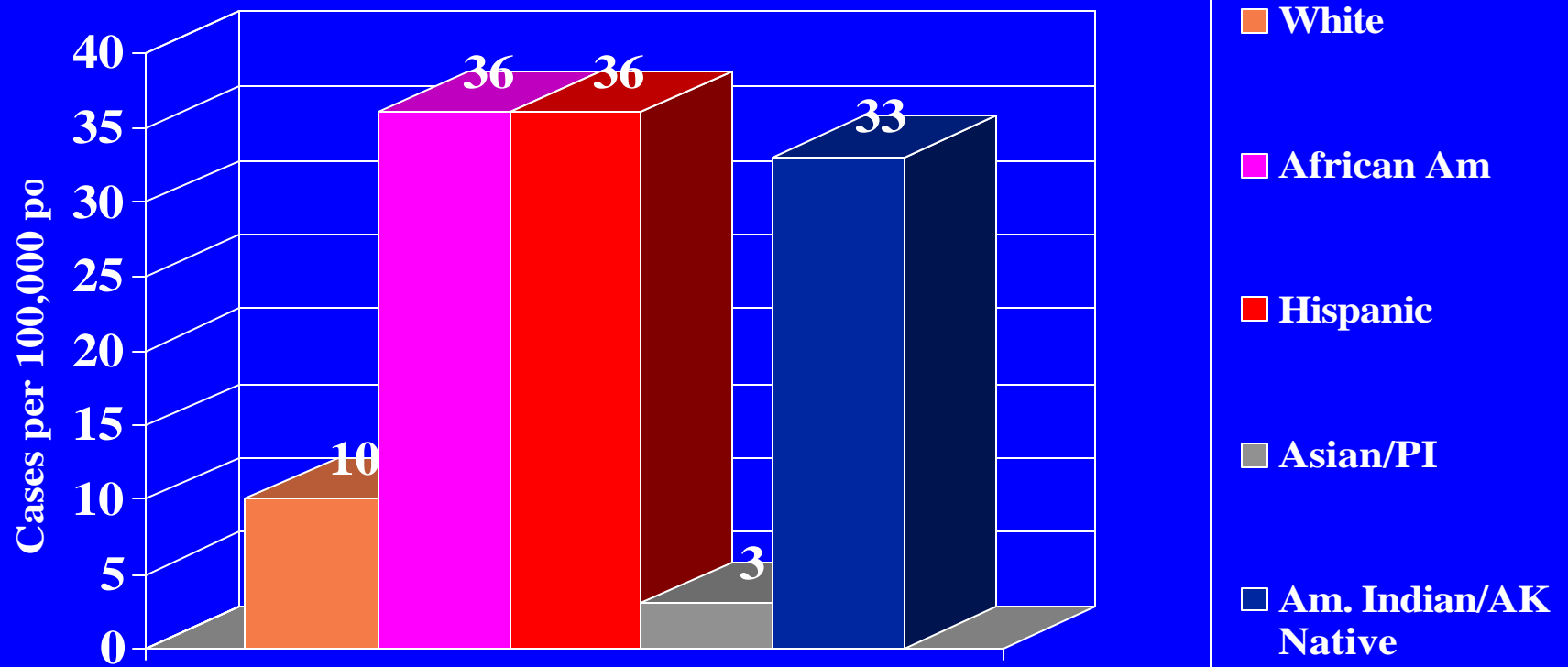
City of Seattle: 32%

Incorporated Cities: 41%

Unincorporated Areas: 27%

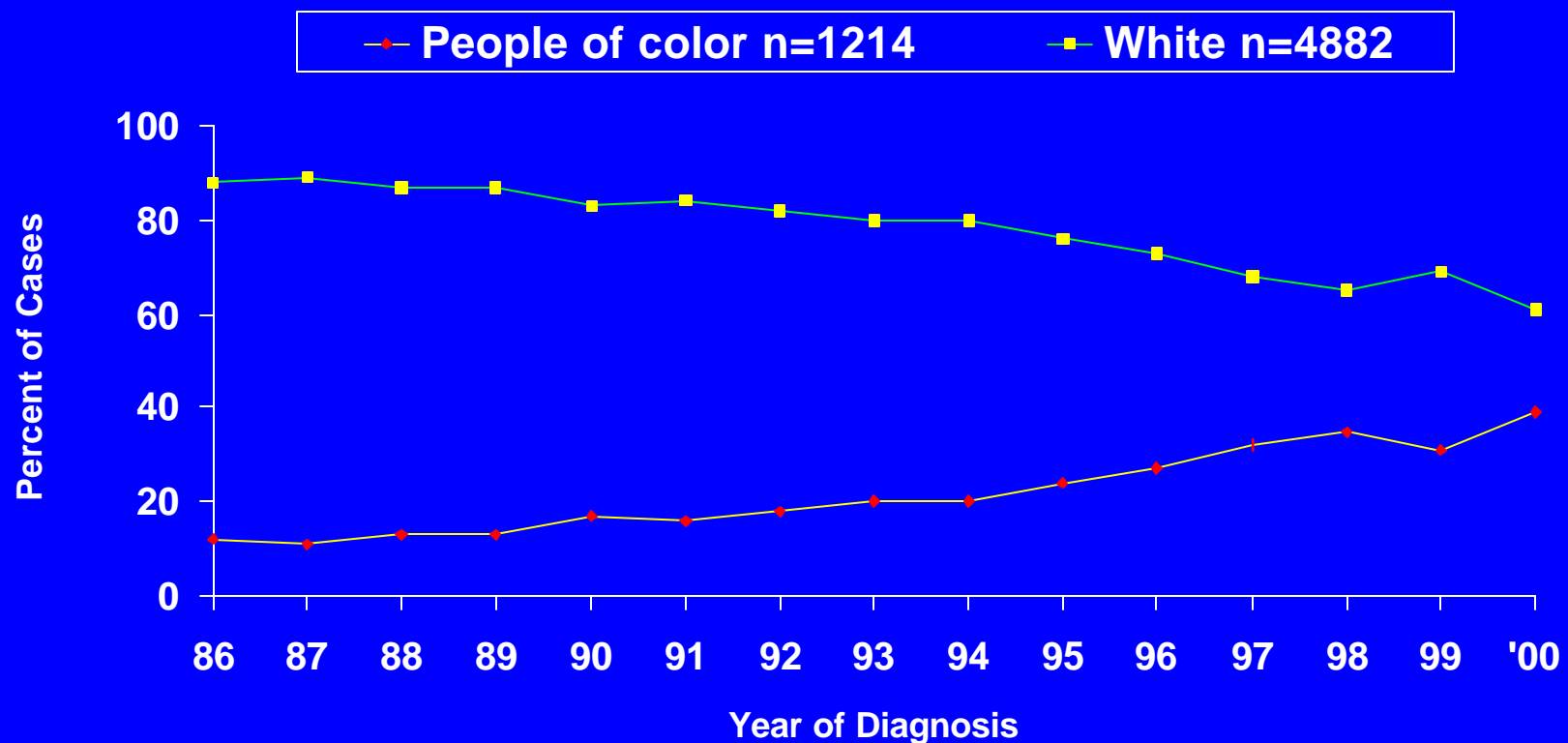


Ave. annual AIDS rates by race/ethnicity King County, 1997-1999



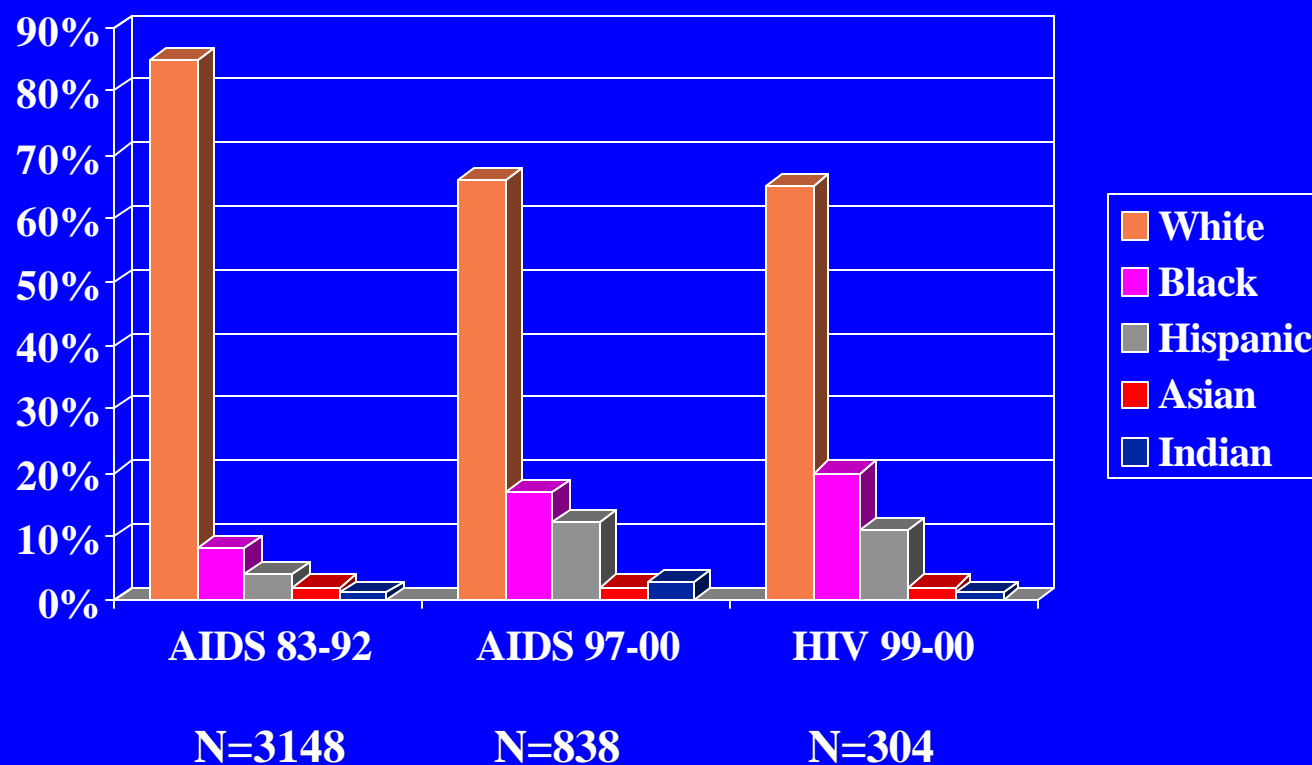
AIDS Cases by Race and Year

King County, 1986-2000



HIV/AIDS Cases by Race/Ethnicity

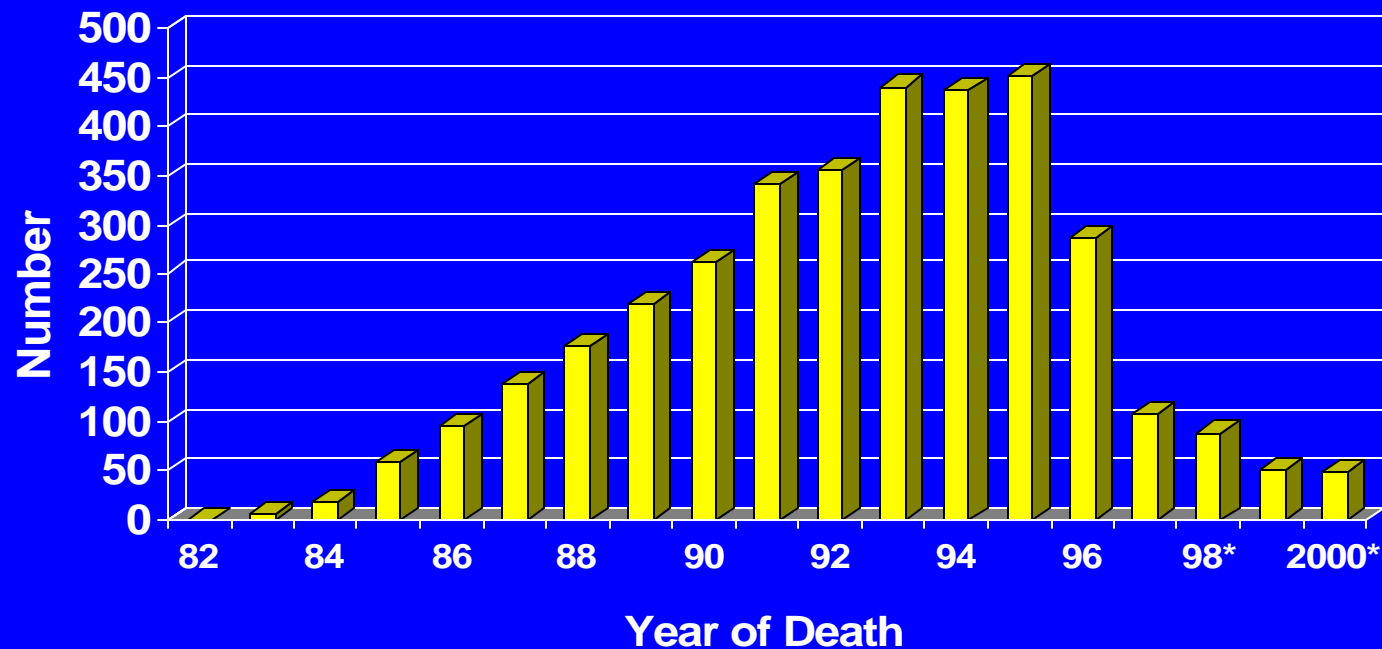
Early AIDS vs. recent AIDS and HIV cases, King County



Deaths of Reported AIDS Cases by Year

King County, 1982-2000

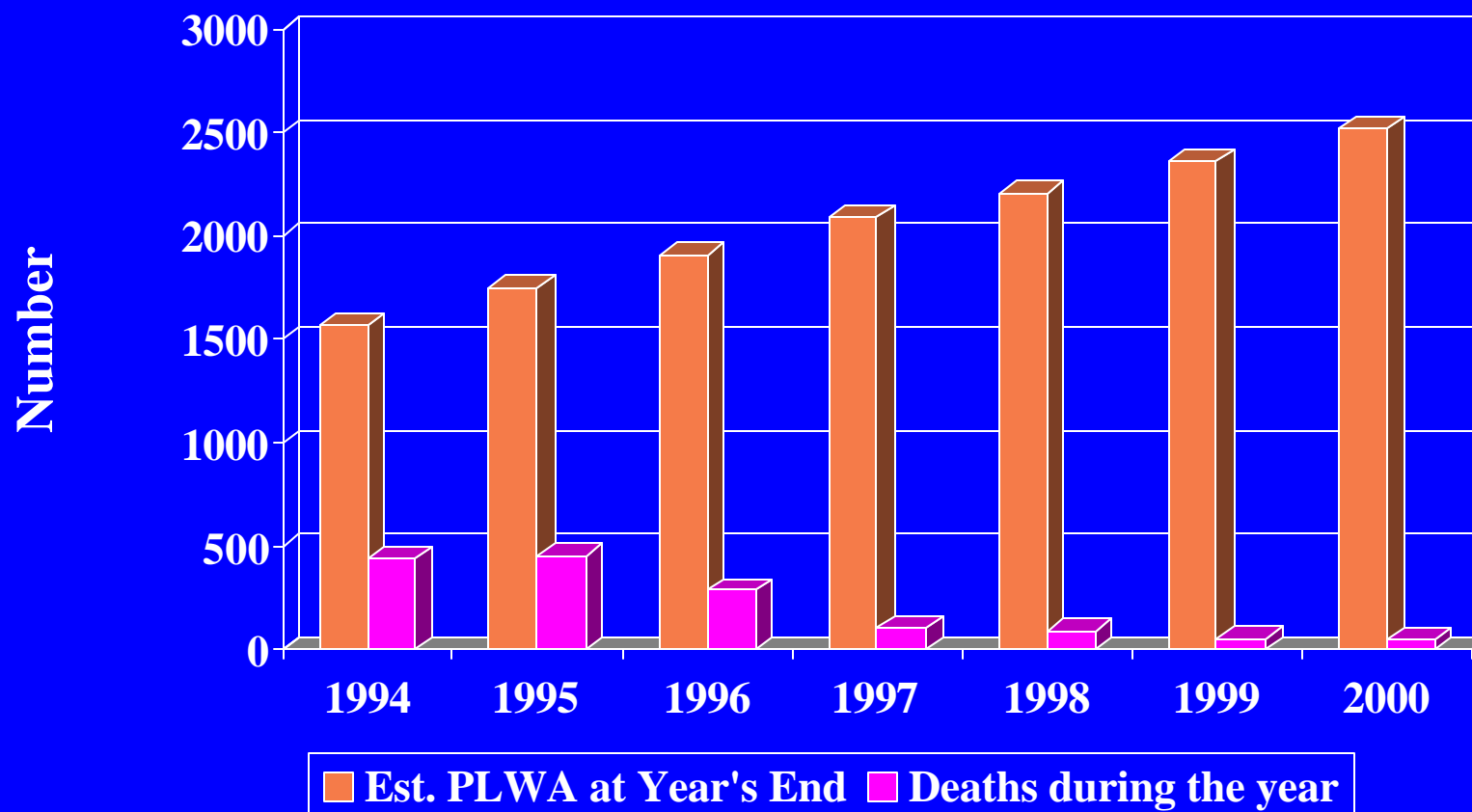
N=3,575



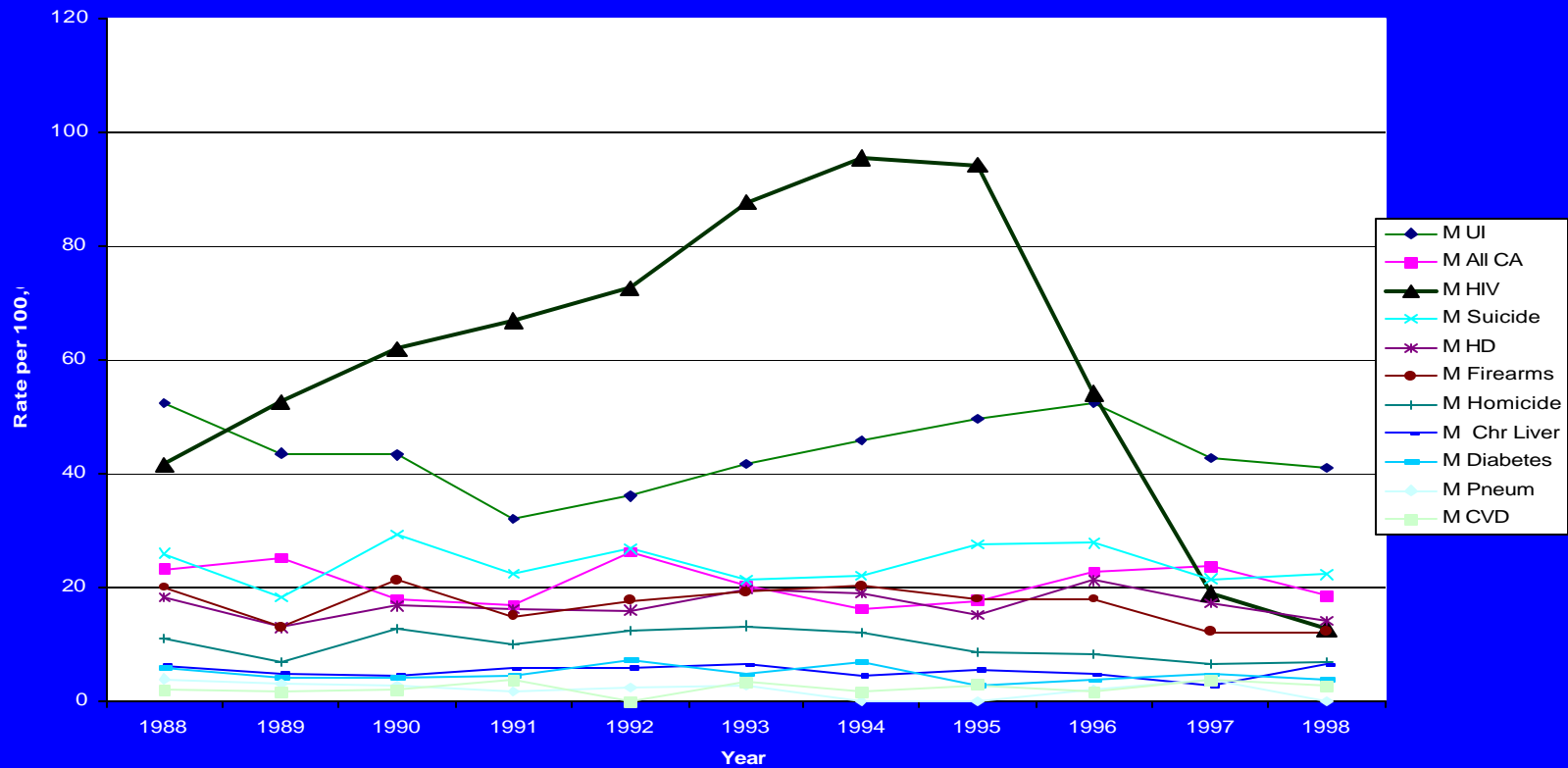
*Provisional data due to delayed ascertainment of deaths outside of King County



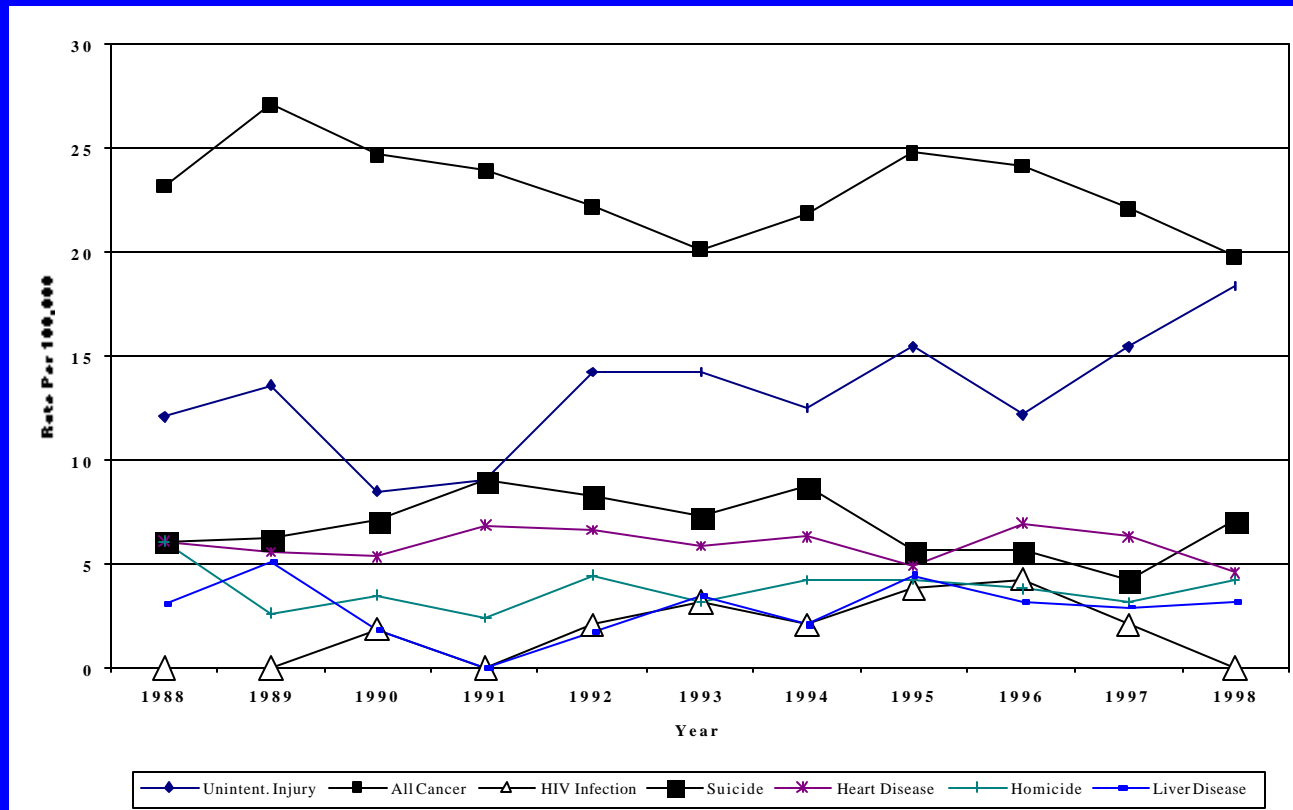
Persons Alive with AIDS at Year's End & Deaths per Year, King County, 1994-2000



Leading Causes of Deaths for Males Age 25-44 -- King County, 1988-98



Leading Causes of Death for Females Age 25-44, King County



Summary of Key Points (1)

King County HIV/AIDS

- ◆ Most new cases continue to be White males, infected through male-to-male sex, but
- ◆ % of cases infected by IDU and heterosexual sex may be increasing
- ◆ Increasing % of AIDS cases are women
- ◆ Increasing % of AIDS cases are people of color



Summary of Key Points (2)

King County HIV/AIDS

- ◆ Dramatic decrease in deaths since 1995
- ◆ Number of people living with AIDS in KC increases each year



Estimating HIV Prevalence



Estimating HIV Prevalence in King Co.

- ◆ We have no direct measurement of the number of people with HIV infection in King County (or elsewhere)
- ◆ Prevalence in the County dependent on inflow (new HIV infections, in-migration) and outflow (deaths, out-migration)
 - Except for deaths, all are difficult to measure



Estimating HIV Prevalence: Methods

- ◆ Back-calculation: # AIDS cases used to extrapolate back to # HIV cases needed generate AIDS
 - Needs a consistent case series -- major changes in case definition of AIDS causes problems
 - Needs consistent progression rate from HIV to AIDS -- this has changed substantially with HAART



Estimating HIV Prevalence: Methods (2)

- ◆ Extrapolation from the state-wide Survey of Childbearing Women
 - HIV status of all women giving birth was established anonymously via routine screening of neonates
 - Assumed the ratio of male:female AIDS equaled ratio of male:female HIV; fertility adjustment
 - Survey stopped by federal mandate in 1995



Estimating HIV Prevalence: Methods (3)

- ◆ HIV case surveillance data can be used if:
 - Complete reporting of HIV+ persons receiving health care (or good estimate of reporting fraction & reporting delay)
 - Estimate of % of HIV infections that are diagnosed
 - Estimate of % of HIV + testing anonymously and not receiving health care (and therefore not reportable)
 - Knowledge of in- and out-migration



Estimating HIV Prevalence: Methods (4)

- ◆ Sampling and enumeration of cases
 - Requires rigorous statistical methods to allow valid extrapolation to overall HIV-infected population

Current estimates of the number of HIV infections in King County (1)

- ◆ 7,500 (range 6,000 - 9,000)
- ◆ Estimate was derived from:
 - CDC's backcalculation estimates of U.S. infections \times proportion of U.S. AIDS cases in King County (1995-96)
 - extrapolation of Survey of Childbearing Women (1995)
 - a “components” analysis by CDC (1996)



Current estimates of the number of HIV infections in King County (2)

- ◆ Survey of HIV Disease and Care (SHDC)
 - New method recently piloted in King county by CDC and Public Health used 2-stage cluster sample of clinics and health care providers
 - Estimated 4,358 HIV+ persons in care (1998)
 - » If 75% of HIV+ in care: 5,810 total HIV+
 - » If 60% of HIV+ in care: 7,263 total HIV+



Current estimates of the number of HIV infections in King County (3)

- ◆ 4,225 persons alive with HIV or AIDS as per Public Health reports received as of 4/19/01
 - Assuming completeness of AIDS data at 90% & HIV at 70%, then 5,202 HIV+ in care
 $(2,626/0.9 \text{ AIDS}) + (1,599/0.7) = 5,202$
 - » If 75% of HIV+ are in care: 6,936 total HIV+
 - » If 60% of HIV+ are in care: 8,670 total HIV+



Comparison of Est. HIV Infections in King Co. 1995-96 and 2001

Category	% of persons living with HIV/AIDS **	Range of estimated HIV infections in 1995-96*	Range of estimated HIV infections in 2001*	Change in estimate 1995-2001
Gender				
Males, all	91%	5,650-8,450	5,460-8,190	<i>Decrease</i>
Females, all	9	350-550	540-810	<i>Increase</i>
HIV exposure				
MSM	70%	4,600-6,850	4,200-6,300	<i>Decrease</i>
IDU (heterosexual)	7	400-650	400-650	<i>No change</i>
MSM/IDU	10	600-900	600-900	<i>No change</i>
Hetero. Contact	5	250-350	300-450	<i>Increase</i>
Pediatric exposure	0.6	20-40	35-55	<i>Increase</i>
Other or unknown	7	<i>not estimated</i>	420-630	--
Race/ethnicity				
White, non-Hisp.	74%	4,800-7,200	4,440-6,660	<i>Decrease</i>
Black, non-Hisp.	14	650-1,000	840-1,260	<i>Increase</i>
Hispanic	8	400-600	480-720	<i>Increase</i>
Asian/Pacific Is.	2	75-125	120-180	<i>Increase</i>
Am. Ind./AK Nat.	2	75-125	120-180	<i>Increase</i>
TOTAL		6,000 - 9,000	6,000 - 9,000	<i>No change</i>

*Numbers of individual categories may not equal total because of rounding.

**Percent of presumed living HIV and AIDS cases in King County reported to Public Health through 3/7/01.



Summary of current estimates of prevalent HIV infections in King County

- ◆ **Total 7,500 (range 6,000 - 9,000)**
 - **Gender**
 - » 91% male, 9% female
 - **Exposure Mode**
 - » 70% MSM, 10% MSM/IDU, 7% IDU, 5% Heterosexual
 - **Race/ethnicity**
 - » 74% White, 14% Black, 8% Hispanic, 2% A/PI, 2% Am Ind/NA

